

August 10, 1992

CD-92-09 (LDV/LDT)

Dear Manufacturer:

Subject: Cold CO Dynamometer/Road load Issues

Enclosed is a draft guidance document dealing with Cold CO dynamometer/road load issues that I plan to issue in approximately one month. The policy set forth will provide vehicle manufacturers the necessary flexibility to conduct their test programs. However, this document provides preliminary conceptual guidance only and is not intended to embody every Cold CO dynamometer/road load issue which may arise. We anticipate as further planning and development of the test programs occur manufacturers will provide us with the other critical specifications to continue the smooth setup and operation of Cold CO test programs. We also expect that Cold CO test procedures will be refined over the next few years based on both manufacturer and EPA experience. Similarly, the development of a more detailed guidance will likely involve the same evolutionary process that resulted in the standardized procedures currently used for FTP testing.

This preliminary guidance is necessary as the cold CO test program will be the first to utilize the new 48 inch dynamometers. Therefore, please note that the attached draft does not address the general issue of application of 48 inch dynamometers to other testing; it only applies to the implementation of the new cold temperature CO testing program improvements.

As always, EPA would appreciate any comments you might offer. Please address your comments by September 7, 1992 to Christine Mikolajczyk of my staff at (313) 668-4403.

Sincerely,

Robert E. Maxwell
Director, Certification Division

Enclosure

DRAFT

Dear Manufacturer:

We have received several inquiries on how manufacturers should establish vehicle road load values for cold temperature CO testing. In addition, questions concerning the dynamometer load setting have also been raised. The following provides guidance necessary to meet requirements for the Cold CO Test Procedure.

Vehicle road load

Manufacturers can establish 20 F road load values by using any of the following methods:

1. Perform a coastdown test at 20 F (± 5 . F) following a procedure comparable to the general procedures outlined in A/C 55C to establish road force as a function of speed. (Procedures yielding equivalent results are also acceptable.)

2. Adjust the road force equations in A/C 55C to reflect 20 F operation using a method that follows good engineering practice. (In lieu of developing the necessary correction factors, a 10% increase in the standard temperature road load value_ at all speeds is acceptable.)

3. For testing performed on a dynamometer with a single point (50 mph) adjustment for road load (e.g., hydrokinetic) or an electric dynamometer modeling such a unit: Decrease the 55 to 45 mph coastdown time (used for dynamometer adjustment for normal temperature FTP testing) by 10%. For those vehicles which will receive confirmatory testing at EPA's laboratory, the manufacturer must provide the loaded coastdown speed vs time relationship for each test vehicle. All cold temperature EPA confirmatory testing will be conducted on a 48 inch electric dynamometer.

Dynamometer adjustment

The manufacturer may adjust the dynamometer by one of the following methods:

1. Hydrokinetic (or fixed curve) dynamometers or dynamometers calibrated to simulate hydrokinetic dynamometers shall be adjusted to reproduce road force at 50 mph as is done for standard FTP testing. Such dynamometers shall be adjusted to reproduce the 55 to 45 mph coastdown time that represents the 20 F road load developed above. Alternatively, these dynamometers shall be adjusted to produce a 10% reduction in the 68 F coastdown target time (55 to 45 MPH) using the loaded coastdown procedure at 20 F.

2. Electric (or adjustable curve) dynamometers shall be set to reproduce 20 F road force over the speed range of the test. Alternatively, the dynamometer shall be adjusted to produce a 10% reduction in the 68 F coastdown target time for each increment (55 to 45, 45 to 35, 35 to 25, and 25 to 15 MPH) using the loaded coastdown procedure at 20 F.

EPA Confirmatory Testing

EPA may elect to conduct confirmatory tests on vehicles tested by the manufacturers. In such instances EPA shall set its 48 inch electric dynamometer to reproduce, as closely as possible, the road force imposed during manufacturer testing. The manufacturer shall

provide necessary information to assist EPA in setting its dynamometer. EPA will use the force curve generated by the manufacturer; EPA retain's the right to verify that the manufacturer has used good engineering practice.

Sincerely,

Robert E. Maxwell
Director, Certification Division